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भारतीय मानक

यात्री कारें — हल्के मिश्र धातु पहिए — संघट्ट परीक्षण

Indian Standard

PASSENGER CARS — LIGHT ALLOY WHEELS — IMPACT TEST

ICS 43.040.50

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BUREAU OF INDIAN STANDARDS
MANAK BHAVAN, 9 BAHADUR SHAH ZAFAR MARG
NEW DELHI 110002

February 2006 **Price Group 2**

Automotive Tyres, Tubes and Rims Sectional Committee, TED 7

NATIONAL FOREWORD

This Indian Standard which is identical with ISO 7141 : 1995 'Passenger cars — Light alloy wheels — Impact test' issued by the International Organization for Standardization (ISO) was adopted by the Bureau of Indian Standards on the recommendation of the Automotive Tyres, Tubes and Rims Sectional Committee and approval of the Transport Engineering Division Council.

The text of ISO Standard has been approved as suitable for publication as an Indian Standard without deviations. Certain conventions are, however, not identical to those used in Indian Standards. Attention is particularly drawn to the following:

a) Wherever the words 'International Standard' appear referring to this standard, they should be read as 'Indian Standard'.

b) Comma (,) has been used as a decimal marker while in Indian Standards, the current practice is to use a point (.) as the decimal marker.

In this adopted standard, reference appears to the following International Standard for which Indian Standard also exists. The corresponding Indian Standard which is to be substituted in its place is given below along with its degree of equivalence for the edition indicated:

International Standard	*Corresponding Indian Standard*	*Degree of Equivalence*
ISO 3911 : 1998 Wheels and rims — Vocabulary, designation and marking	IS 10694 (Part 1) : 1993 Automotive vehicles — Rims — General requirements: Part 1 Nomenclature designation marking and measurement (*first revision*)	Technically Equivalent

For the purpose of deciding whether a particular requirement of this standard is complied with, the final value, observed or calculated, expressing the result of a test or analysis, shall be rounded off in accordance with IS 2 : 1960 'Rules for rounding off numerical values (*revised*)'. The number of significant places retained in the rounded off value should be the same as that of the specified value in this standard.

Indian Standard

PASSENGER CARS — LIGHT ALLOY WHEELS — IMPACT TEST

1 Scope

This International Standard specifies a laboratory test procedure to evaluate the axial (lateral) kerb impact collision properties of a wheel manufactured either wholly or partly of light alloys. It is intended for passenger car applications, with the purpose of screening and/or quality control of the wheel.

The vocabulary used is in accordance with ISO 3911.

2 Normative reference

The following standard contains provisions which, through reference in this text, constitute provisions of this International Standard. At the time of publication, the edition indicated was valid. All standards are subject to revision, and parties to agreements based on this International Standard are encouraged to investigate the possibility of applying the most recent edition of the standard indicated below. Members of IEC and ISO maintain registers of currently valid International Standards.

ISO 3911:—[1], *Wheels and rims — Vocabulary, designation and marking.*

3 Test equipment

3.1 New wheels, fully processed, representative of wheels intended for passenger car application, fitted with a tyre.

NOTE 1 Tyres and wheels used in the tests should not be used subsequently on a vehicle.

3.2 Impact loading test machine with a vertically acting striker having an impacting face at least 125 mm wide and at least 375 mm long and sharp edges broken by radius or chamfer, in accordance with figure 1. The striker mass, m, within a tolerance of ± 2 %, expressed in kilograms, shall be as follows:

$$m = 0{,}6W + 180$$

where W is the maximum static wheel loading, as specified by the wheel and/or vehicle manufacturer, expressed in kilograms.

3.3 Mass of 1 000 kg.

4 Calibration

Ensure, by means of a test calibration adapter, that the 1 000 kg mass (3.3) applied vertically to the centre of the wheel fixing as shown in figure 2 causes a deflection of 7,5 mm ± 0,75 mm when measured at the centre of the beam.

5 Test procedure

5.1 Mount the test wheel (3.1) and tyre in the test machine (3.2) such that the impact loading is applied to the rim flange of the wheel. The wheel shall be mounted with its axis at an angle of 13° ± 1° to the vertical with its highest point presented to the striker.

The tyre mounted on the test wheel shall be the smallest nominal section width tubeless radial-ply tyre intended for use on that wheel. The inflation pressure shall be that specified by the vehicle manufacturer or, in the absence of such specification, it shall be 200 kPa.

The temperature of the test environment shall remain within a range of 10 °C to 30 °C throughout the test period.

5.2 Ensure that the wheel is mounted on the hub fixture with dimensionally representative fixings such as would be used on a vehicle. Manually tighten the fixings to a value or by a method as recommended by the vehicle or wheel manufacturer.

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[1] To be published. (Revision of ISO 3911:1977)

Because the design of wheel centre members may vary, test a sufficient number of locations on the wheel rim circumference to ensure that the integrity of the centre members is assessed. Use new wheels each time.

5.3 Ensure that the striker is over the tyre, and overlaps the rim flange by 25 mm ± 1 mm. Raise the striker to a height of 230 mm ± 2 mm above the highest part of the rim flange and allow it to fall.

6 Faillure criteria

The wheel is considered to have failed the test if any of the following apply:

a) visible fracture(s) penetrate through a section of the centre member of the wheel assembly;

b) the centre member separates from the rim;

c) the tyre loses all air pressure within 1 min.

The wheel is not considered to have failed the test by deformation of the wheel assembly or by fractures in the area of the rim section struck by the face plate of the striker.

Dimensions in millimetres

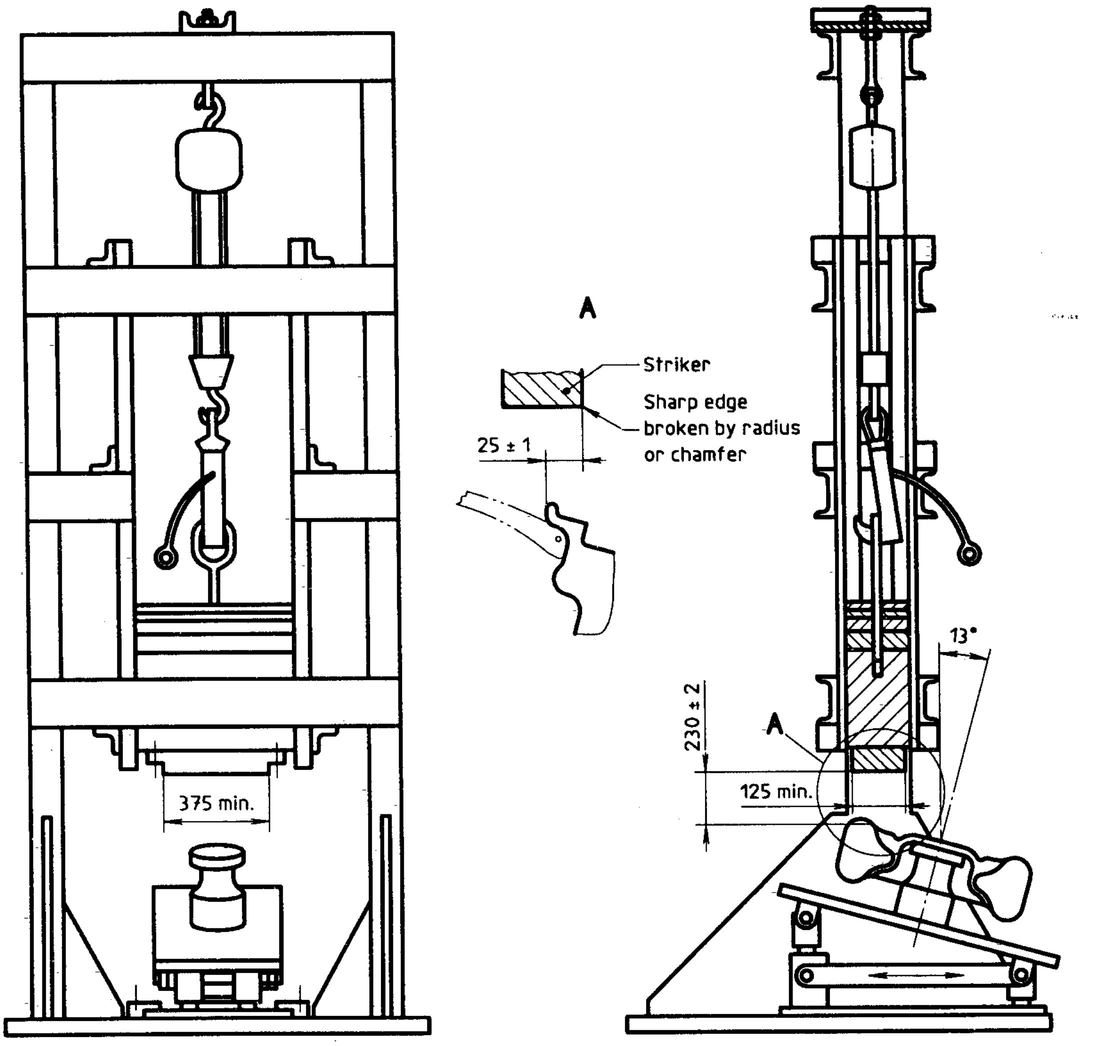

Figure 1 — Impact loading test machine

Dimensions in millimetres

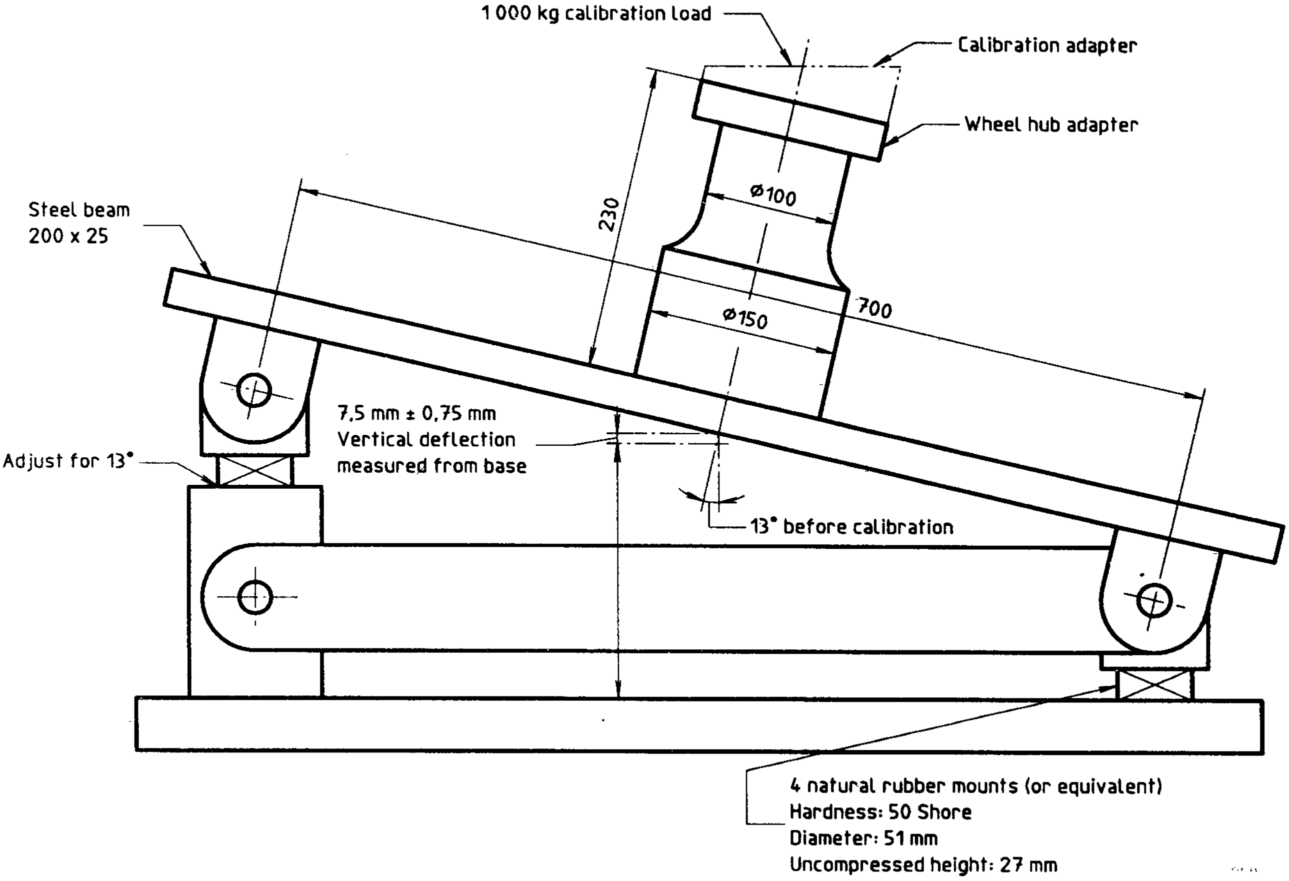

Figure 2 — Application of loading to centre of wheel mount

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Amendments Issued Since Publication

Amend No.	Date of Issue	Text Affected

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